## WATER TO WATER HEAT PUMP SCHEDULE

| UNIT DESIG. | COOLING | | | | | | | | | HEATING | | | | | | | | ELECTRICAL | | | | | | | | GPM LOAD SIDE COOL/HEAT | BASIS OF DESIGN "CLIMATE MASTER" | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HP EER BASE | HP EER BID OPTION | MBH TOTAL | MBH REJECT | WATER E.W.T. °F SOURCE | WATER L.W.T. °F SOURCE | WATER E.W.T. °F LOAD SIDE | WATER L.W.T. °F LOAD SIDE | KW INPUT | MBH CAPACITY | MBH ABSORP. | WATER E.W.T. °F SOURCE | WATER L.W.T. °F SOURCE | WATER E.W.T. °F LOAD SIDE | WATER L.W.T. °F LOAD SIDE | KW INPUT | VOLTS/PH | NO. | R.L.A. EA. | L.R.A. EA. | TOTAL FLA | MIN. CIRCUIT AMP | MAX. FUSE SIZE | GPM SOURCE | | | | |
| HP-1 | 14.2 | 20.3 | 52.4 | 64.9 | 86.0 | 96 | 55 | 41 | 3.68 | 72.7 | 47.1 | 68.0 | 59.0 | 100.0 | 120.00 | 5.63 | 460/3 | 1 | 7.8 | 52 | 7.8 | 9.8 | 15 | 15 | 7.5/7.5 | TMW060 | 1,2 |
| HP-2 | 14.2 | 20.3 | 52.4 | 64.9 | ↓ | ↓ | ↓ | ↓ | 3.68 | 72.7 | 47.1 | ↓ | ↓ | ↓ | ↓ | 5.63 | ↓ | ↓ | 7.8 | 52 | 7.8 | 9.8 | 15 | 15 | 7.5/7.5 | TMW060 | 1,2 |
| HP-3 | 14.2 | 20.3 | 52.4 | 64.9 | ↓ | ↓ | ↓ | ↓ | 3.68 | 72.7 | 47.1 | ↓ | ↓ | ↓ | ↓ | 5.63 | ↓ | ↓ | 7.8 | 52 | 7.8 | 9.8 | 15 | 15 | 7.5/7.5 | TMW060 | 1,2 |
| HP-4 | 14.2 | 20.3 | 52.4 | 64.9 | ↓ | ↓ | ↓ | ↓ | 3.68 | 72.7 | 47.1 | ↓ | ↓ | ↓ | ↓ | 5.63 | ↓ | ↓ | 7.8 | 52 | 7.8 | 9.8 | 15 | 15 | 7.5/7.5 | TMW060 | 1,2 |
| HP-5 | 14.2 | 20.3 | 52.4 | 64.9 | ↓ | ↓ | ↓ | ↓ | 3.68 | 72.7 | 47.1 | ↓ | ↓ | ↓ | ↓ | 5.63 | ↓ | ↓ | 7.8 | 52 | 7.8 | 9.8 | 15 | 15 | 7.5/7.5 | TMW060 | 1,2 |

NOTES: 1. MANUFACTURER'S MODEL NUMBERS ARE PROVIDED AS BASIS OF DESIGN ONLY AND ARE NOT TO LIMIT SELECTION. PROVIDE SCHEDULED EQUIPMENT OR EQUIPMENT OF EQUAL QUALITY AND CAPACITY.
2. HFC-410A REFRIGERANT

## AIR HANDLING UNIT SCHEDULE

| AHU1 (VFD) | | |
|---|---|---|
| AIRFLOW | CFM | 4220 |
| ESP | IN H20 | 2.5 |
| UL LISTED UNIT | | YES |
| INSULATION | | 1.5 LB |
| PANEL WALL TYPE | | SOLID DOUBLE WALL |
| SUPPLY FAN VFD | | YES, W/ BYPASS |
| UNIT LENGTH, MAX. | IN. | 120.625 |
| UNIT HEIGHT, MAX. | IN. | 45 |
| UNIT WIDTH, MAX. | IN. | 66.5 |
| ELECTRICAL | VOLTS/PHASE | 460/3 |
| COOLING COIL | | |
| DRAIN PAN | | STAINLESS STEEL |
| SYSTEM TYPE | | CHILLED WATER |
| COIL CASING | | STAINLESS STEEL |
| EDB | F | 74.6 |
| EWB | F | 60.2 |
| LDB | F | 52.8 |
| LWB | F | 51.57 |
| SENSIBLE CAPACITY | MBh | 100.95 |
| TOTAL CAPACITY | MBh | 100.95 |
| ENTERING FLUID TEMPURATURE (°F) | F | 40.97 |
| FLUID TEMPERATURE RISE (°F) | F | 14 |
| STANDARD FLUID FLOW RATE | GPM | 14.36 |
| COIL ROWS | | 6 |
| FLUID PRESSURE DROP | FT. H20 | 0.7 |

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2. PROVIDE MERV-8 PREFILTER UPSTREAM OF COOLING COIL AND MERV-14 POSTFILTER DOWNSTREAM OF COOLING COIL

## AIR CONDITIONING UNIT SCHEDULE

| | | |
|---|---|---|
| SYMBOL | | HP6/AH2 |
| MANUFACTURER (BASIS OF DESIGN) * | | MITSUBISHI |
| SPLIT SYSTEM | INDOOR | MSZ-A17NA |
| | OUTDOOR | MSUZ-A17NA |
| REFRIGERANT | | R410A |
| CFM | | 419 |
| CAPACITY ARI STD. | HEATING | 20,100 BTUH |
| | COOLING | 16200 BTUH |
| | EFFICIENCY | 16 SEER |
| ELECTRICAL DATA | VOLTAGE INDOOR | 208 V, 1ø |
| | VOLTAGE OUTDOOR | 230 V, 1ø |
| | AUXILIARY HEAT | N/A |
| | MIN. CIRC. AMPS INDOOR | 1.0 (AH2) |
| | MIN. CIRC. AMPS OUTDOOR | 14 (HP6) |
| | MAX. FUSE AMPS INDOOR | 15 (AH2) |
| | MAX. FUSE AMPS OUTDOOR | 15 (HP6) |
| OUTSIDE AIR (CFM) | | – |
| WEIGHT (LBS) | INDOOR | 23 (AH2) |
| | OUTDOOR | 88 (HP6) |
| NOTE | | – |
| ACCESSORIES | | – |

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## VAV BOX SCHEDULE

| VAV MARK NO. | LOCATION | INLET SIZE IN. | CFM MAX | CFM MIN | MIN PH DROP IN W.C. | HOT WATER COIL (ALL COILS ONE ROW, UNO) CFM | ΔT | GPM | EAT | LAT | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VAV-1 | 00 | 05 | 250 | 125 | 0.4 | 125 | 13.16 | 0.7 | 52.60 | 95 | 1 2 3 4 5 |
| VAV-2 | 020 | 06 | 390 | 195 | | 195 | 10.74 | 1.2 | | | |
| VAV-3 | 003 | 04 | 210 | 105 | | 105 | 13.16 | 0.6 | | | |
| VAV-4 | 004 | 05 | 230 | 115 | | 115 | 13.16 | 0.7 | | | |
| VAV-5 | 006 | 05 | 250 | 125 | | 125 | 13.16 | 0.8 | | | |
| VAV-6 | 008 | 12 | 1350 | 675 | | 675 | 14.54 | 4.1 | | | |
| VAV-7 | 042 | 06 | 360 | 180 | | 180 | 11.97 | 1.1 | | | |
| VAV-8 | 010 | 04 | 140 | 70 | | 70 | 13.16 | 0.4 | | | |
| VAV-9 | 012 | 05 | 260 | 130 | | 130 | 13.16 | 0.8 | | | |
| VAV-10 | 013 | 04 | 130 | 65 | | 65 | 13.16 | 0.4 | | | |
| VAV-11 | 015 | 05 | 245 | 123 | | 123 | 13.16 | 0.7 | | | |
| VAV-12 | 016 | 04 | 130 | 65 | | 65 | 13.16 | 0.4 | | | |
| VAV-13 | 018 | 04 | 220 | 110 | | 110 | 13.16 | 0.7 | | | |
| VAV-14 | 019 | 04 | 130 | 65 | | 65 | 13.16 | 0.4 | | | |
| VAV-15 | 020 | 04 | 160 | 80 | | 80 | 13.16 | 0.5 | | | |
| VAV-16 | 022 | 06 | 490 | 245 | | 245 | 4.66 | 1.5 | | | |
| VAV-17 | 028 | 08 | 830 | 415 | | 415 | 10.85 | 2.5 | | | |
| VAV-18 | 030 | 04 | 150 | 75 | | 75 | 13.16 | 0.5 | | | |
| VAV-19 | 033 | 08 | 600 | 300 | | 300 | 5.07 | 1.8 | | | |
| VAV-20 | 039 | 05 | 250 | 125 | ↓ | 125 | 13.16 | 0.8 | ↓ | ↓ | ↓ |

NOTES:
1. MAXIMUM PERMISSIBLE DEPTH OF BOX 18". INSTALL PER MANUFACTURER'S RECOMMENDATIONS TO PROVIDE PROPER CLEARANCES FOR ACCESS AND MAINTENANCE. ORIENTATION/CONFIGURATION SHALL BE COORDINATED WITH ALL TRADES
2. VAV BOX MANUFACTURER SHALL PROVIDE 24 VOLT DAMPER ACTIVATOR WIRED TO A TERMINAL STRIP, AND A CONTROL BOX SUITABLE FOR DDC CONTROL SYSTEM.
3. PROVIDE (1) ROW HOT WATER REHEAT COIL.
4. MANUFACTURER'S MODEL NUMBERS ARE PROVIDED AS BASIS OF DESIGN ONLY AND ARE NOT TO LIMIT SELECTION. PROVIDE SCHEDULED EQUIPMENT OR EQUIPMENT OF EQUAL QUALITY AND CAPACITY.
5. HW COIL SELECTED ON 17°F TEMPERATURE DIFFERENCE AND 103°F LWT.

## REGISTER, LOUVER & GRILLE SCHEDULE

| MARK | TYPE | SERVICE | | BLOW | REMARKS | NOTES |
|---|---|---|---|---|---|---|
| A | SQUARE DIRECTIONAL (LOUVER) FACE CEILING DIFFUSER | SUPPLY | ☒ | AS INDICATED | FRAME STYLE TO SUIT CEILING FINISH. FLUSH FOR HARD CEILING. BASIS OF DESIGN: PRICE SPD SERIES | 1 |
| B | SQUARE DIRECTIONAL (LOUVER) FACE CEILING DIFFUSER | SUPPLY | ☒ | AS INDICATED | FRAME STYLE TO SUIT CEILING FINISH. 24×24 "LAY-IN" BASIS OF DESIGN: PRICE SPD SERIES | 1 |
| C | SLOT DIFFUSSER | SUPPLY | ▭ | 180° PATERN | SLOT DIFFUSER-ALUMINUM CONSTRUCTION BASIS OF DESIGN: PRICE SDS SERIES | 1 |
| D | SPOT DIFFUSER | SUPPLY | ▭ | ADJUSTABLE | SPOT DIFFUSER-ALUMINUM CONSTRUCTION BASIS OF DESIGN: SEIHO PK-E SERIES | 1 |
| E | SIDEWALL LINEAR DIFFUSER | SUPPLY | ▭ | 1 WAY | SIDEWALL SUPPLY REGISTER-ALUMINUM CONSTRUCTION BASIS OF DESIGN: PRICE LBP SERIES | 1 |
| R | REGISTER FIXED ANGLED VANES SURFACE MOUNTED | RETURN/ EXHAUST TRANSFER | ——— | ——— | RETURN OR EXHAUST REGISTER AS INDICATED-45° ANGLED VANES-ALUMINUM | 1 |
| L | EXTERIOR WALL LOUVER FIXED ANGLED VANES | OA W/ EXHAUST | ——— | ——— | EXTERIOR WALL LOUVER-EXTRUDED ALUMINIUM DRAINABLE WITH BIRD SCREEN. BASIS OF DESIGN: RUSKIN TYPE ELF 6375X | 1, 2 |

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2. LOW LEAKAGE DAMPERS THAT AUTOMATICALLY CLOSE WHEN EMERGENCY AIR DISTRIBUTION SWITCH IS ACTIVATED.

## PUMP SCHEDULE

| NO. | SERVICE | TYPE | QNTY. | GPM | HEAD FT. | MOTOR H.P. (MIN) | MOTOR RPM | MOTOR VOLT/ø | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| P1 | CONDENSER WATER | IN-LINE, CENTRIFUGAL | 2 | 45 | 25 | 0.75 | 1200 | 480/3 | BELL AND GOSSETT SERIES 80, 1.5X1.5X9.5 143 FRAME |
| P2 | CHILLED WATER | IN-LINE, CENTRIFUGAL | 2 | 22.5 | 50 | 1.5 | 1800 | 480/3 | BELL AND GOSSETT SERIES 80, 1.5X1.5X7B 145JM FRAME |
| P3 | HOT WATER | IN-LINE, CENTRIFUGAL | 2 | 22 | 50 | 1.5 | 1800 | 480/3 | BELL AND GOSSETT SERIES 80, 1.5X1.5X7B 145JM FRAME |
| P4 | GROUND LOOP (BID OPTION ONLY) | IN-LINE, CENTRIFUGAL | 2 | 45 | 80 | 5 | 1800 | 480/3 | BELL AND GOSSETT SERIES 80, 1.5X1.5X9.5 184 FRAME |

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2. PROVIDE VARIABLE FREQUENCY DRIVE (VFD) AS SPECIFIED.

## BOILER SCHEDULE (BASE BID ITEM ONLY)

| ITEM | SERVICE | WATER (TOTAL) GPM | °F IN | °F OUT | NATURAL GAS (MBUH) INPUT | OUTPUT | BASIS OF DESIGN | NOTES |
|---|---|---|---|---|---|---|---|---|
| 1 | COND. WATER | 9.8 | 40 | 60 | 105 | 19.4 (LOW FIRE) | LOCHINVAR MODEL # KB-106 | 1 |

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## COOLING TOWER SCHEDULE (BASE BID ITEM ONLY)

| MARK | GPM | EWT °F | LWT °F | OA WB°F | FAN HP | VOLTS,PHASE | WEIGHT (LBS) | MANUFACTURER AND MODEL # |
|---|---|---|---|---|---|---|---|---|
| CT1 | 45 | 96 | 86 | 82 | 5.0 | 480V, 3PH | 2,415 | BALTIMORE AIRCOIL COMPANY VF1-018-12HH |
| | | | | | | | | |

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## PRECONDITIONED OUTDOOR AIR UNIT SCHEDULE

| UNIT NUMBER | WEIGHT (lbs.) | ELECTRICAL POWER | FAN MOTOR BHP SUPPLY | FAN MOTOR BHP EXHAUST | NOMINAL CONDITION | INPUT CONDITIONS OUTSIDE AIR CFM | EXT. STATIC PR. (WC) | DEG.F (db) | DEG.F (wb) | HUM. gr/lb | ENTHALPY (Btu/lb) | VENTILATION AIR DEG.F (db) | DEG.F (wb) | RH gr/lb | ENTHALPY (Btu/lb) | RETURN CONDITIONS ENTERING AIR CFM | EXT. STATIC PR. (WC) | DEG.F (db) | REL. HUMIDITY % | HUM. gr/lb | ENTHALPY (Btu/lb) | EFFECTIVENESS LAT. | SENS. | MEASURED TOTAL S/W | DESIGN BASIS MFR & MODEL # | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ERV1 | 704 | 460V/3ø | 1.88 | 1.88 | SUMMER | 850 | 0.50 | 96 | 80.8 | 136.1 | 44.49 | 80.86 | 69.11 | 87.7 | 33.15 | 725 | 0.50 | 75 | 49.8 | 64.4 | 28.07 | 77% | 82% | 79% | MICROMETL EVCDCCA440000BEFXG-E | 1, 2 |
| | | | | | WINTER | 850 | 0.50 | 27 | 25.8 | 16 | 9.41 | 57.69 | 50.25 | 41.9 | 20.34 | 725 | 0.50 | 70 | 36.3 | 46.7 | 25.30 | | | | | |

NOTES: 1. PROVIDE EXHAUST AIR CAP ON ROOF.
2. PROVIDE FRESH AIR INTAKE CAP ON EXISTING BATHROOM EXHAUST FAN CURB.
3. MANUFACTURER'S MODEL NUMBERS ARE PROVIDED AS BASIS OF DESIGN ONLY AND ARE NOT TO LIMIT SELECTION. PROVIDE SCHEDULED EQUIPMENT OR EQUIPMENT OF EQUAL QUALITY AND CAPACITY.

FINAL SUBMISSION
APRIL 18, 2012

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